



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,040	08/31/2001	Angeliki Alexiou	Alexiou1	5548

7590 02/23/2005

Docket Administrator (Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NJ 07733-3030

EXAMINER

WIN, AUNG T

ART UNIT PAPER NUMBER

2645

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/944,040

Applicant(s)

ALEXIOU, ANGELIKI

Examiner

Aung T Win

Art Unit

2645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/29/2002</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Piolini.

Regarding claim 1 and 2, Piolini discloses a method of operating a mobile telecommunications network for channel assignment in a system utilizing the space division multiple access (SDMA) technique, the network having a multiplicity of telecommunications cells, comprising the steps of: providing directional beams for a plurality of mobile users in the same telecommunications cell [Figure 1] and on the same telecommunications channel (mobile users in channels A or B) [Figure 1]; monitoring the Carrier-to-Interference Ratio for each user to compare the monitored values with a threshold value; and when the threshold value is reached (decreases below the threshold) by any mobile user in the network, allocating a different channel to that mobile user (a new channel

assignment i.e. intra-cell handover) over the downlink (inherent) [Column 1, Line 47-52] [Column 2, Line 43-64] [Column 6, Line 17-21].

Regarding Claim 3, Piolini further discloses the method of claim 1 wherein the number of co-channel users within a cell is kept constant (Unavailable shared channels inherently imply the number of co-channel users within a cell sector is limited) [Column 3, Line 50-53] and the Carrier-to-Interference Ratio of each user is improved [Column 1, Line 33-34].

Regarding Claim 4, Piolini further teaches the method of claim 1 wherein the Carrier-to-Interference Ratio of each mobile user is maintained at an acceptable level [Column 1, Line 47-52] and the number of co-channel users per cell is increased [Column 1, Line 9-14].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Forssen in view of Piolini.

Regarding claim 5, Forssen discloses the base station of cellular communication system comprising a plurality of beamforming antennas (adaptive antenna array) [Figure 2]; a beamforming (inherent for a base station to provide beams of adaptive antenna array used by the system) [Column 1, Line 60-63] for a plurality of mobile users in the same telecommunication cell (mobile users served by the same base station) [Figure 2]. Forssen further discloses a receiver (inherent) to receive spatial information (direction-of-arrival from mobile users) served by the base station, wherein a spatial allocator (processor inherent for a base station) implemented with algorithm where the spatial information is used to predict a deterioration in transmission quality of the mobile users [Column 3, Line 49-66] to allocate a different radio channel to one of the mobile users in the same channel. Forssen further teaches that the modification of array transceivers for serving mobile stations is necessary when the new mobile station is allocated to an already used channel [Column 5, Line 37-50] [Column 1, Line 30-44] to generate the appropriate beam patterns.

Forssen fails to teach analysis of comparing the threshold value of Carrier-to-Interference Ratio to the Carrier-to-Interference Ratio information for the mobile users served by the base station although Forssen teaches the prediction of the transmission quality of the mobile users using the spatial information.

Piolini discloses a method of operating a mobile telecommunications network for channel assignment in a system utilizing the space division multiple access

(SDMA) technique, comprising monitoring the Carrier-to-Interference Ratio for each user; comparing the monitored values with a threshold value; and when the threshold value is reached (decreases below the threshold) by any mobile user in the network, allocating a different channel to that mobile user (a new channel assignment i.e. intra-cell handover) over the downlink (inherent) [Column 1, Line 47-52] [Column 2, Line 43-64] [Column 6, Line 17-21].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Forssen to analyze the transmission quality of each user to determine whether to allocate one of mobile users to another channel by comparing the Carrier-to-Interference Ratio threshold to the Carrier-to-Interference Ratio of the mobile users as taught by Piolini. One of the ordinary skilled in the art would have been motivated to do this in order to increase spectral efficiency and to avoid an excessive number of handovers [Column 2, Line 1 of Forssen].

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Benkner et al.	Patent No.: 6,023,623
Crichton et al.	Patent No.: 6,330,459 B1
Kanai	Patent No.: 5,566,355
Paulraj et al.	Patent No.: 6,351,499 B1

Scherzer                      Patent No.: 6,347,234 B1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aung T Win whose telephone number is (703) 605-4306. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aung T. Win  
Group Art Unit 2645  
February 16, 2005



FAN TSANG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600